

writer found another specimen six miles west of Lawrence in a strawberry patch on a high hill overlooking Lake View.

In a letter upon this subject, Mr. S. H. Scudder gives references to the capture of *Dissosteira longipennis*, in Texas (Boll), in Nebraska, "entire state" (Bruner), in extreme western Kansas (Osborn), Barber Co., Kansas (Bruner). He says farther: "I have 34 refer-

ences to it in literature, but in none do I find a reference to its capture as far east as Lawrence," and thinks it improbable that it has been reported as taken this far east.

These notes are given in evidence of what may be considered an eastward tendency in the geographical range of this insect.

#### NOTES ON NEW ENGLAND ACRIDIIDAE, IV, — ACRIDIINAE. — V.

BY ALBERT P. MORSE, WELLESLEY, MASS.

##### 41. *Melanoplus extremus* Walk.

Figs. 41, a.

*Caloptenus extremus*. Walker, Cat. Dermapt. Salt. Brit. Mus., IV, 681, (1870).; Thomas, Syn. Acrid., 225.

*Melanoplus junius*. Morse, List, 106.

" *extremus*. Scudder, Rev. Melanopli, 287, pl. xviii, fig. 10.

Measurements from 62 ♂, 82 ♀:— Antenna: ♂, 7.5-9; ♀, 6-8. H. fem.: ♂, 9.4-11.2; ♀, 10-12.6. Teg.: ♂, 9.5-16; ♀, 10-18. Body: ♂, 15-19; ♀, 15.5-24. Total: ♂, 15-22; ♀, 16-24. Teg. vs. H. fem.: ♂, -3 to +3; ♀, -4 to +3.

A very variable species. In the fresh state its general coloring—a peculiar olive with blackish markings—is very appreciable and of service in recognizing it, though the long-winged female is liable to be mistaken for *femur-ru-*

*brum*. While tegmina of every length between the extremes given are to be found, most of the specimens observed fall into two series, a short- and a long-winged. In the former the tegmina usually fall about 2 mm. short of the end of the hind femora; in the latter pass them by 2 or 3 mm.;—the names *junius* and *scandens* respectively have been applied to these by Scudder. Of the specimens now in my collection (a number having been disposed of through exchanges) about one-eighth of the females and two-thirds of the males are long-winged (*scandens*). The long-winged form seems to be more prevalent in high latitudes and at high elevations. In point of size also the species varies much according to locality, specimens from Winchendon, Mass., (800-1200 ft.) being noticeably larger than those from the summit of Mt.

Greylock (3500 ft.); but Arctic American specimens are said by Scudder to be distinctly larger than those from New England or Nebraska. The color of the hind tibiae is very variable; these are normally red, either deep or pale in tint, yet in many males are luteous or even greenish. In this particular also specimens vary according to locality.

It makes its appearance early, reaching maturity in late June or early July, and in the White Mountain region is not uncommon in early September. Like its ally *femur-rubrum*, it is partial to damp or moist surroundings and I have found it most common in the thick, succulent growth of grass in meadows and springy fields. Blatchley found it in an open peat-bog in Indiana.

I have taken it at Norway, Me., No. Conway, Jackson, and the summit of Mt. Washington, N. H.; Hyde Park, Jay, Montgomery, Newport, Troy, Woodstock, and on Ascutney Mt., Vt.; Mt. Greylock and Winchendon, Mass., and have received it from Hudson, Me. (F. P. Briggs).

#### 42. *Melanoplus minor* Scudd.

Figs. 42. a.

*Caloptenus minor*. Scudder, Proc. Boston Soc. Nat. Hist., XVII, 478 (1875).

*Melanoplus minor*. Morse, List, 106; Beutenmüller, Orth. N. Y., 307; Scudder, Rev. Melanopli, 337, pl. xxii, fig. 9.

Measurements from 223 ♂, 145 ♀:

— Antenna: ♂, 6.7-7.5; ♀, 7-8. H. fem.: ♂, 10-11; ♀, 12-13.5. Teg.: ♂, 11-15 (average 12-13); ♀, 13.5-18. Body: ♂, 15-18.5; ♀, 19-24 mm.

The body about reaches the end of the hind femora; the tegmina are usually 1 to 2 mm., shorter, though one male has them extending 2 mm. beyond the femora.

The female of this species resembles most that of *collinus* from which it can be readily distinguished, however, by the form of the scoop of the upper valves of the ovipositor. The hind tibiae are very variable, ranging from cherry-red to greenish or blue. Red tibiae are more common among the females (25-33%, ♂ 17-20%); among the males, however, they are frequently glaucous at base and pinkish at tip.

This is the earliest member of the genus to appear in spring, adults having been taken June 7. By the 20th or 25th of the month, according to weather and lay of the land it is quite common and this is the best time to collect it in series, before the advent of the swarms of *atlanis*, *femur-rubrum* and *collinus* which shortly appear. I have taken examples as late as Aug. 20 but at that time they are very scarce and while they may be found in Sept. or later are not to be expected.

I have found it most numerous among sweet vernal and blue grasses (*Anthoxanthum odoratum*, *Poa pratensis*) in pastures and mowing-lands on gravelly or sandy upland soils. Its flight is seldom more than a few feet in length.

I have specimens from Fryeburg, Me., No. Conway and Jackson, N. H., Belmont (C. J. Maynard), Florence and Hadley (S. W. Denton), Adams, Blue Hill, Wellesley and many towns in its vicinity, New Braintree, Worcester and Winchendon, Mass., Thompson, Montville, Niantic, North Windham and Stamford, Ct.; and Woodstock. Vt.

43. *Melanoplus collinus* Scudd.

Figs. 43, a, b.

*Melanoplus collinus*. Scudder, Proc. Boston Soc. Nat. Hist., XIX, 284, (1878); Rev. Melanopli, 346, pl. xxiii, fig. 6; Fernald, Orth. N. E., 32; Morse, List, 106; Beutenmüller, Orth. N. Y., 306.

Measurements from 175 ♂, 148 ♀:—Antenna: ♂, 7-9; ♀, 7.5-9.5. H. fem.: ♂, 10-12.5; ♀, 11.5-15. Teg.: ♂, 10.7-16.5; ♀, 14-19. Body: ♂, 16.5-20; ♀, 19.5-27.5. Total: ♂, 16.5-22.5; ♀, 20.5-25.5 mm. The tegmina reach about to the end of the hind femora, varying 2 to 3 mm. either way.

This is one of our later-appearing species, reaching maturity in the latter part of July and being found until snow falls; I have taken it from July 30 to Nov. 17. It may be found almost anywhere, but is partial to open groves and the edges of woodlands made up of deciduous trees, especially on rather dry upland soil. I have specimens from Fryeburg, Norway, and Speckled

Mt., Stoneham, Me.; Hanover (C. M. Weed), Mt. Kearsarge (2000 ft.) and Pinkham Notch, N. H.; Wickford, R. I.; Canaan, Deep River, New Haven North Haven, Stamford, and Thompson, Ct., besides Dedham and Belmont (C. J. Maynard), Easthampton (S. W. Denton), Adams, Mt. Greylock (3500 ft.), Dover, Sherborn, Waltham, Wellesley, Provincetown, and West Chop, Martha's Vineyard, Mass.

44. *Melanoplus femoratus* Burm.

Fig. 44.

*Caloptenus femoratus*. Burmeister, Handb. Ent., II, 638 (1838).

*Caloptenus bivittatus*. Scudder, Mat., 465., Smith, Orth. Me., 150, Orth. Ct., 362; Thomas, Syn. Acrid., 166:

*Acrydium flavovittatum*. Harris, Treatise, 3rd ed., 173.

*Melanoplus bivittatus*. Beutenmüller, Orth. N. Y., 306.

*Melanoplus bivittatus*. var. *femoratus*. Morse, List, 106.

*Melanoplus femoratus*. Fernald, Orth. N. E., 32; Comstock, Introd., 110; Scudder, Rev. Melanopli, 360, pl. xxiv, fig. 4.

Measurements from 142 ♂, 100 ♀:—Antenna: ♂, 14-16; ♀, 9.6-14. H. fem.: ♂ 12.5-16.5; ♀, 15.5-22. Teg.: ♂, 16-22; ♀, 19.5-26; Body: ♂, 23-29; ♀, 29-40. Total: ♂, 23.5-31; ♀, 28-38. Teg. vs. H. fem.: ♂, -2 -+3; ♀, -4 -+3mm.

This is the largest member of the genus found in New England and is

readily recognized. Considerable individual variation in general color exists, there being three well-marked color-forms and all intergrades: 1st, olive-green shaded with brownish-fuscous; 2nd, olive-green shaded with lilaceous or rufous; 3rd, a bright, light greenish yellow. Of these the first is the most plentiful but typical examples of all three and any number of intergrades may be taken almost side by side. In dried specimens this difference of coloration is less noticeable, but the color may be retained in cabinet specimens by removing the contents of the body when first captured stuffing with cotton, and drying rapidly.

This species is common throughout New England, inhabiting both coast-wise marshes and the alpine summits of the White Mts. So widely distributed is it that a list of localities is needless. It makes its appearance late in June or early in July and is common during most of the season; I have taken it from June 27 to Sept. 20 and it could probably be found even later. It is most at home among the coarse grasses and weeds of moist meadows, springy runs and swamps, but is comparatively sluggish and easily captured.

#### 45. *Melanoplus punctulatus* Scudd.

Figs. 45, a.

*Caloptenus punctulatus* Uhler Ms. Scudder, Materials, etc., in Boston Journ. Nat. Hist., VII, p. 465 (1862).

Smith, Orth. Me., 150; Thomas, Syn. Acrid., 163.

*Melanoplus punctulatus*. Fernald, Orth. N. E., 32; Morse, List, 106; Beutenmüller, Orth. N. Y., 307; Scudder, Rev. Melanopli, 374, pl. xxv, fig. 4.

Measurements from 13 ♂, 18 ♀: Antenna: ♂, 11-13; ♀, 10.5-12. H. fem.: ♂, 10-11; ♀, 11.3-12.7. Teg: ♂, 14-16.8; ♀, 14.5-21.6. Body: ♂, 19-20.5; ♀, 23-29. Total: ♂, 20.5-25; ♀, 21.5-29 mm.

The male is readily recognized by the cerci, which though very variable resemble those of no other species found here save occasionally of *femoratus* from which size at once distinguishes it; the female may be readily recognized by the ovipositor.

This handsome locust, though widely distributed in the United States and not uncommon locally, is rare in collections, owing, no doubt, to its habits, which are more arboreal than those of our other species. Coniferous trees, especially pines, are its favorite haunts. In groves of these it may be found either on the ground or on the trunks and branches. I have taken it also in open grassy fields and even in a greenhouse. It is a sluggish insect, and a late-comer as well, adults appearing in late July or early August (my earliest capture is Aug. 2), and is found through September and October.

I have specimens from Sherborn (A. L. Babcock), Amherst (C. H. Fernald), Prospect Hill, Waltham (C. J. Maynard), and Wellesley, Mass.; and

Canaan, Ct. It has been reported to me from West Woodstock, Ct., (Beutenmüller), and is recorded from Maine and New Hampshire by Scudder.

26. *PAROXYA* Scudd.

*Paroxya* Scudder 1877. Proc. Boston Soc. Nat. Hist., XIX, pp. 28-29.

46. *Paroxya floridana*. Thom.

*Caloptenus floridianus*. Thomas, Bull. U. S. Geol. Surv. Terr., I, No. 2., p. 68, (1874).

*Paroxya atlantica*. Fernald, Orth. N. E., 34; Morse, List, 105; also Psyche, (1893), 401; Beutenmüller, Orth. N. Y., 305.

*Paroxya floridana*. Scudder, Rev. Melanopl., 383; Sprague, Psyche (1896) 439.

Measurements from 82 ♂, 58 ♀;—Antenna: ♂, 13-15; ♀, 8.5-11. H. fem.: ♂, 12-13.5; ♀, 15.3-18.7. Teg.: ♂, 13-16; ♀, 14.5-20. Body: ♂, 20-25; ♀, 26-36. The hind femora usually pass the tegmina by 1 or 2 mm. in the male and 2 or 3 in the female.

The only variation of note is the occurrence of a striking melanistic form,

at least in the male, several examples of which I secured at Faneuil, Mass., some years ago.

This is a relatively slender-bodied locust of medium size and graceful and elegant appearance which should be readily recognized when captured. It occurs locally in swamps and marshes in southern New England, where I have taken it on cord-grass (*Spartina*) growing in the tide-water ditches of salt meadows and in the long sedge of bushy inland meadows and swamps. It is usually numerous but not abundant where found. While active and alert it is readily captured owing to its habit of trying to escape observation by getting out of sight behind the stouter stems of grass and weeds rather than by flight, to which it resorts only when alarmed. It leaps well and quickly, but its flight is comparatively short.

In New England it has been taken from July 22 to Aug. 30 at Cambridge, Faneuil, Newtonville, and Walpole, Mass.; Deep River, North Haven, Niantic, and Stamford, Ct. Immature specimens were plentiful at Faneuil on the earlier date.

ENTOMOLOGICAL EXPEDITIONS.—Mr. R. E. Snodgrass, assistant in entomology in Leland Stanford Jr University, sailed from San Francisco on Nov. 1, for the Galapagos Islands. Mr. Snodgrass will spend six months on the islands collecting insects and other animals for the entomological and zoölogical departments of the University. Mr. Snodgrass is accompanied by Mr. Edmund Heller, student in the department of

zoölogy of Leland Stanford Jr University.

C. F. Baker left Auburn, Ala., on Nov. 1st, 1898. He has gone on a two years' leave of absence from the Polytechnic Institute, as field botanist to the Herbert H. Smith exploring expedition, which will be engaged in biological work in northwestern South America. All letters and packages for him should be addressed to St. Croix Falls, Polk Co., Wisconsin.